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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,971	06/10/2004	Ryoji Kaneko	SIMTEK6915	3970

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EXAMINER	
PRESTON, ERIK D	

ART UNIT	PAPER NUMBER
2834	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/709,971	KANEKO, RYOJI	
	Examiner	Art Unit	
	Erik D. Preston	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *11 August 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1-3 & 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Egawa et al. (US 6819025).

With respect to claim 1, Egawa teaches a DC electric machine (Fig. 1) comprising a shaft (Fig. 1, #33a) rotatable about an axis, a plurality of circumferentially spaced permanent magnets (Fig. 1, #35) disposed around said axis, a plurality of circumferentially spaced magnetic pole teeth (Fig. 1, #36) facing said permanent magnets, electrical coils (Fig. 1, #37) wound on said magnetic pole teeth, a plurality of circumferentially spaced commutator segments (Fig. 1, #38) having clearances between adjacent edges to which ends of said coil windings are connected, and a plurality of brushes (Fig. 1, #39) in sliding contact with said commutator segments for the transfer of electrical energy between said coils and said brushes, said coil ends being connected to selected of said commutator segments so that electrical energy flows through adjacent coil pairs in the same circuit in opposite directions upon rotation of said machine.

With respect to claim 2, Egawa teaches the electric machine of claim 1, wherein the coil ends of adjacent pairs are connected to commutator segments that are spaced from each other by at least two commutator segments that are not connected to any coil winding (as seen in Fig. 4).

With respect to claim 3, Egawa teaches the electric machine of claim 1, wherein both ends of the winding of each coil winding are connected to the commutator segments, across each other and across one end winding of an adjacent coil winding (as seen in Fig. 4).

With respect to claim 12, Egawa teaches the electric machine of claim 1, wherein the machine comprises an electric motor (Abstract).

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 4-11 &13-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Egawa et al. (US 6819025) in view of Cros et al. (US 6891304).

With respect to claims 4,5,10 & 11, Egawa teaches the electric machine of claim 1, wherein the number of permanent magnets is six, the number of magnetic pole teeth is eight, and the number of brushes is six, but it does not teach the number of commutator segments to be equal to twice the number of magnetic pole teeth. However, Cros teaches an electric machine (Fig. 5) with four permanent magnets, six magnetic pole teeth, twelve commutator segments, and four brushes. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the electric machine of Egawa in view of the electric machine as taught by Cros because it decreases the cost, weight, and size of a motor while at the same time offering a higher efficiency (Cros, Col. 3, Lines 38-45).

With respect to claim 6,13 & 17, Egawa in view of Cros teaches the electric machines of claims 5 & 16, Egawa teaches the electric machine of claim 12, and Egawa teaches that the coil ends of adjacent pairs are connected to commutator segments that are spaced from each other by at least two commutator segments that are not connected to any coil winding (as seen in Fig. 4).

With respect to claims 7 & 18, Egawa in view of Cros teaches the electric machines of claims 6 & 17, wherein each of the 12 commutator segments is connected in parallel to another commutator segment spaced six segments from it (as seen in Cros, Fig. 5).

With respect to claims 8 & 19, Egawa teaches the electric machine of claim 2, Egawa in view of Cros teaches the electric machine of claim 13, and Cros teaches a second series of coil windings (Fig. 9, #1.3-5.3) formed around each of the pole teeth and connected to the commutator segments that are not connected to the first mentioned series of coil windings (Fig. 9, #1.1-5.1).

With respect to claims 9 & 20, Egawa in view of Cros teaches the electric machines of claims 8 & 19, wherein electrical energy flows through adjacent coil pairs in the second series of coils in opposite directions upon rotation of said machine.

With respect to claim 11, Egawa in view of Cros teaches the electric machine of claim 9,

With respect to claim 14, Egawa in view of Cros teaches the electric motor of claim 13, and Egawa teaches that both ends of the winding of each coil winding are

connected to the commutator segments, across each other and across one end of the winding of an adjacent coil winding (as seen in Fig. 4).

With respect to claims 15,16,21 & 22, Egawa in view of Cros teaches the electric machines of claims 9 & 13, Egawa teaches the electric machine of claim 12, and Cros teaches that the number of permanent magnets is four, the number of magnetic pole teeth is six, the number of commutator segments is twelve, and the number of brushes is four (as seen in Fig. 5).

Response to Arguments

Applicant's arguments filed 08/11/2005 have been fully considered but they are not persuasive. In response to applicant's argument that Egawa does not teach the direction of current flow through adjacent coils in a commutator circuit to be in opposite directions upon rotation of a motor, it is noted that in figures 5a through 5f, Egawa teaches that the magnetic polarities, caused by the direction of the current flow through the coil, of every tooth will change during rotation of the motor (Col. 7, Line 53-Col. 8, Line 4), therefore, since the claims make no positive recitation of the circuit being a closed circuit, or that the adjacent coil pairs have electrical energy flowing through them in opposite directions simultaneously, the Examiner reaffirms the rejection of claim 1 as being anticipated by Egawa. The applicant's claims only disclose that during the rotation of a motor, electrical energy will flow through adjacent coil pairs in the same commutator circuit in opposite directions, which the Egawa reference does in fact teach.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 6362555, US 6703751, US 6906479 & GB 2250384.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erik D. Preston whose telephone number is 571-272-8393. The examiner can normally be reached on Monday through Friday 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schuberg can be reached on 571-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

09/14/2005

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